

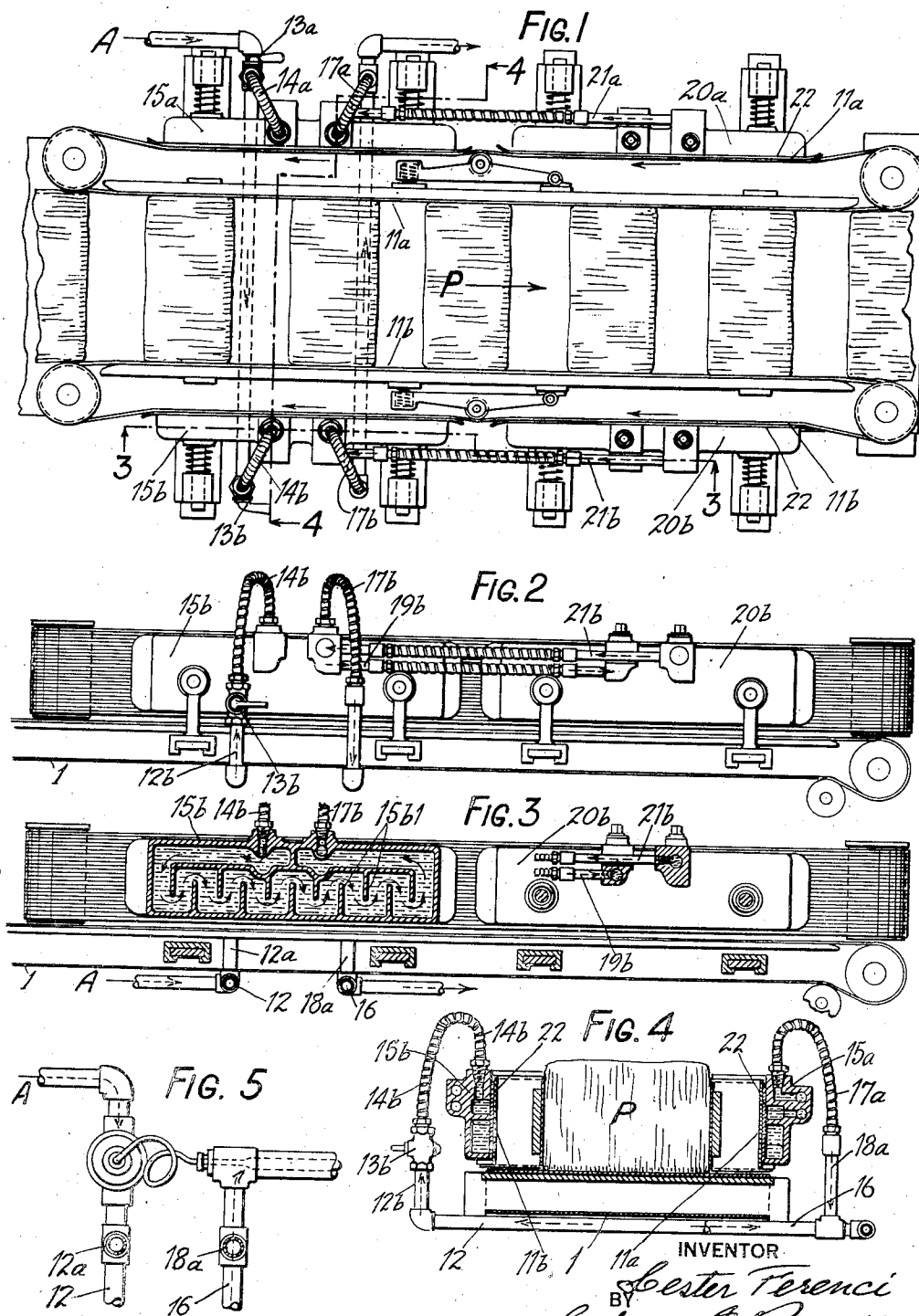
Oct. 18, 1938.

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2,133,348

COOLED DELIVERY FOR WRAPPING MACHINES

Original Filed Nov. 9, 1934



UNITED STATES PATENT OFFICE

2,133,348

COOLED DELIVERY FOR WRAPPING
MACHINES

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Application November 9, 1934, Serial No. 752,347
Renewed April 13, 1938

10 Claims. (Cl. 93-2)

This invention relates to an improvement in wrapping machines operating to apply a wrapper of fusible coated regenerated cellulose, waxed paper, or other suitable material to an article and heat seal the wrapper, and more particularly to a cooled delivery for chilling and setting the heated seals of the package so formed.

In such machines it is usually desirable to hold together the heat sealed folds of the wrapped package for as long a period as possible in order to properly seal the same. The article after having been wrapped is generally carried along on belt conveyors which absorb heat from the package and, unless the heat is dissipated, in a short time become too hot to properly chill and set the seals of the wrapper.

It is the main object of this invention to dissipate in a novel manner the heat the conveyor belts have absorbed from the hot packages. This is accomplished by making the outer or operating face of the idle run of the belts constituting the delivery of the machine travel across and contact with the walls of water-cooled chambers. With this arrangement it has been found that belts formed of canvas or other suitable substantially non-heat-conductive material produce a more efficient chilling and setting of the package seals than is obtainable with prior arrangements which comprise endless metal belts having cooling chambers engaging the inactive faces of the belts.

The chambers in the present invention are maintained at the proper temperature by circulating cold water or a refrigerant therethrough, and thereby absorbing the heat from the operating faces of the belts.

The construction and arrangement of the cooling units to obtain the maximum cooling effect from the water circulated through the cooling chambers will be hereinafter fully described. The cold water may be admitted to the cooling system by means of pet cocks operated by hand, or by a valve controlled by a thermostat placed in the outlet end of the cooling system, thus controlling the inlet of cool water by the temperature of the water leaving the cooling chambers.

With this and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawing which forms a part of this specification and in which like characters of reference indicate the same or like parts:

Fig. 1 is a plan view of the cooled delivery ar-

ranged to receive the wrapped loaves from the heat sealer of a bread wrapping machine;

Fig. 2 is a side view of the same;

Fig. 3 is a sectional view on line 3-3 of Fig. 1;

Fig. 4 is a sectional view on line 4-4 of Fig. 1; 5 and

Fig. 5 is a detail view of the thermostat-controlled valves used in an alternative arrangement.

In carrying the invention into effect there is provided a conveyor for advancing heat sealed packages, a set of traveling endless belts formed of suitable non-heat-conductive material and arranged to engage the heated seals of the packages and absorb heat therefrom to chill and set the same, and means engaging the operating faces only of the belts and cooling the same, whereby the heat absorbed by the operating faces of the belts is dissipated. In the best constructions contemplated, said means includes a set of spring-pressed cooling chambers having walls bearing against the operating faces of the belts at their idle runs, and flexible pipe connections for conducting a cooling medium into and out of said chambers. These various means and parts may be widely varied in construction within the scope of the claims for the particular device selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention, therefore, is not to be restricted to the specific construction shown and described.

In the drawing two pairs of cooling chambers have been shown to illustrate the construction of the device. The use of more than one pair is not necessary but is considered a convenience, and adds to the flexibility of the system, particularly when the belts are of great length.

Referring now to Figs. 1, 2, 3, and 4, the cooled delivery consists of the conveyor belts 11a and 11b, which are formed of canvas or other suitable substantially non-heat-conductive material, acting to chill and set the heated seals on the ends of the wrapped loaves being forwarded on the conveyor 1 from the heat sealer of the bread wrapping machine (not shown) to the delivery table (not shown).

Cold water or refrigerated brine entering the pipe 12 as shown by the arrow A in Figs. 1 and 3, is supplied through risers 12a and 12b to both sides of the cooling system independently through inlet valves 13a and 13b. From these valves the water is led, through flexible connections such as the hoses 14a and 14b, into cooling chambers 15 and 15b, respectively. As the cooling water enters chambers 15a and 15b it is compelled to circulate through the full length of the chamber, its

straight line flow being interrupted by a number of baffle plates 15b1, as shown in Fig. 3.

After the water has completed its flow around the baffle-plates it enters the outlets in the top of the chambers and, if only one pair of chambers are to be used, the water would be led off through the top of the chambers 15a and 15b and conducted into the outlet pipe 16 through the hoses 17a and 17b and pipe connections 18a and 18b respectively. When both pairs of cooling chambers are to be used, the direct outlet in the top of chambers 15a and 15b is blocked and the water is led by pipe connections 19a and 19b into the next pair of chambers 20a and 20b, respectively, where it is made to circulate similarly as it did in chambers 15a and 15b. The cooling water is led off through the top of chambers 20a and 20b and conducted by pipes 21a and 21b back to chambers 15a and 15b where it enters the outlet connections and is carried into the outlet pipe 17 in the same manner previously described, as if only a single pair of chambers were used.

The heat absorbing plates or walls 22 of the cooling chambers 15a, 15b, and 20a, 20b, contact with the operating faces of the belts 11a and 11b at their idle runs. Since the water-cooled chambers are held in contact with the same face of the belts 11a and 11b which engages and absorbs heat from the package seals, and since the canvas or other material of which the belts are formed is a comparatively good insulator, the heat absorbed by the operating face of the belts is dissipated in a more efficient and practical manner than in the prior arrangements in which it is attempted to dissipate the heat by causing it to flow through the belts to a cooling or refrigerating unit.

The cooling chambers are held against the belts 11a and 11b by adjustable spring pressure and, at a point between the chambers, rollers on spring-pressed brackets bear against the inner face of the belt and keep the belts in tension against the cooling unit. Stationary plates on which the spring-pressed brackets are hinged extend along the inner face of the operative run of belts 11a and 11b and serve to maintain the belts in engagement with the package ends.

An advantage possessed by this device over other devices for the same purpose is that it applies the cooling element on the surface of the belt which has been in contact with the hot packages, thus avoiding the necessity of drawing the heat through the thickness of the belt. As it requires an appreciable interval of time for heat to flow through the thickness of the belts even when metal belts are used, it will be understood that in the prior devices the belts must be of excessive length to be cooled properly.

Should the absorption of the heat cause the temperature of the cooling medium in the cooling chambers to rise unduly, the attendant of the machine may reduce its temperature by adjusting the inlet valves 13a and 13b which regulate the flow of cooling medium through the system. The substitution of a thermostat-controlled inlet valve, as shown in Fig. 5, would be to advantage both of economy in water consumption and service, as it would result in the use of only as much water as actually necessary to keep the units cool, and would relieve the attendant of this duty.

What is claimed is:

1. In a cooled delivery for wrapping machines, the combination with a conveyor for advancing heat sealed packages, of a set of traveling endless belts formed of substantially non-heat-con-

ductive material and arranged to engage the heated seals of the packages and absorb heat therefrom to chill and set the same, and means engaging the operating faces only of said belts and cooling the same, whereby the heat absorbed by the operating faces of the belts is dissipated.

2. In a cooled delivery for wrapping machines, the combination with a conveyor for advancing heat sealed packages, of a set of traveling endless belts formed of substantially non-heat-conductive material and arranged to engage the heated seals of the packages and absorb heat therefrom to chill and set the same, and means engaging the operating faces only of said belts and cooling the same, whereby the heat absorbed by the operating faces of the belts is dissipated, said means including a set of spring-pressed cooling chambers having walls bearing against the operating faces of said belts at their idle runs, and flexible pipe connections for conducting a cooling medium into and out of said chambers.

3. In a cooled delivery for wrapping machines, the combination with a conveyor for advancing heat sealed packages, of a set of traveling endless belts formed of substantially non-heat-conductive material and arranged to engage the heated seals of the packages and absorb heat therefrom to chill and set the same, and means engaging the operating faces only of said belts and cooling the same, whereby the heat absorbed by the operating faces of the belts is dissipated, said means including a plurality of pairs of independently mounted spring-pressed cooling chambers having a wall bearing against the operating faces of said belts at their idle runs, flexible pipe connections for conducting a cooling medium into one chamber of each pair and out of the other chamber thereof, flexible pipe connections for conducting the cooling medium from one chamber to the other of each pair, and a thermostatically-controlled inlet valve for governing the flow of cooling medium into the chambers.

4. The combination with a set of traveling endless belts formed of substantially non-heat-conductive material and arranged to engage the seals of heat sealed packages and absorb heat therefrom to chill and set the same, and means engaging the operating faces only of said belts and cooling the same, whereby the heat absorbed by the operating faces of the belts is dissipated.

5. The combination with a set of traveling endless belts formed of substantially non-heat-conductive material and arranged to engage the seals of heat sealed packages and absorb heat therefrom to chill and set the same, and means engaging the operating faces only of said belts and cooling the same, whereby the heat absorbed by the operating faces of the belts is dissipated, said means including a set of spring-pressed cooling chambers having a wall bearing against the operating faces of said belts at their idle runs, and flexible pipe connections for conducting a cooling medium into and out of said chambers.

6. The combination with a set of traveling endless belts formed of substantially non-heat-conductive material and arranged to engage the seals of heat sealed packages and absorb heat therefrom to chill and set the same, and means engaging the operating faces only of said belts and cooling the same, whereby the heat absorbed by the operating faces of the belts is dissipated, said means including a plurality of pairs of independently mounted spring-pressed cooling chambers having a wall bearing against the operating faces of said belts at their idle runs, flexible pipe connections for conducting a cooling me-

dium into one chamber of each pair and out of the other chamber thereof, flexible pipe connections for conducting the cooling medium from one chamber to the other of each pair, and a thermostatically controlled inlet valve for governing the flow of cooling medium into the chambers.

7. The combination with a set of dry traveling endless flexible members of non-metallic material arranged to engage the seals of heat sealed packages, and cooling means engaging the operating packages contacting faces only of said members.

8. The combination with a conveyor for advancing heat sealed packages, of a set of traveling endless members formed of substantially non-heat conductive material and arranged to engage the heated seals of packages on said conveyor and absorb heat therefrom to chill the same, and dry means engaging the operating faces only of

said members and cooling the same, whereby the heat absorbed by the operating faces of said members is dissipated.

9. The combination with a set of traveling members formed of substantially non-heat conductive material and arranged to engage heated seals of packages and absorb heat therefrom to chill the same, of dry means engaging the operating faces only of said members and cooling the same, whereby the heat absorbed by the operating faces of said members is dissipated.

10. The combination with a set of traveling members formed of substantially non-heat-conductive material and arranged to engage heated seals of packages and absorb heat therefrom to chill the same, of refrigerated means engaging the operating faces only of said members and cooling the same, whereby the heat absorbed by the operating faces of said members is dissipated.

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